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REVIEW

Assessment of Suicide Risk in the Civilian Population, Active Military Personnel and Veterans Using Psychometric Instruments – A Literature Review

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Abstract: The assessment of suicide risk is a highly debated topic in the literature due to the complex interplay between social, psychological, cultural, and biological factors that contribute to the pathogenesis of self-harm. There is no unanimously accepted predictive model of suicide and no widely recognized evidence-based algorithm for psychiatric and psychological evaluation in clinical and non-clinical populations for early detection of self-harm. Therefore, this narrative review is focused on identifying the validated clinical instruments that may contribute to the construction of a possible screening and monitoring plan for suicide risk in military and civilian populations. Four electronic databases were searched (PubMed, CINAHL, Google Scholar, and Clarivate/Web of Science) for relevant reports on psychometric tools for detecting suicide risk published between the inception of each archive and January 2025. Seventeen instruments dedicated to the measurement of suicide and suicide-related aspects were reviewed, as well as three tools for the evaluation of depression severity that include specific items for assessing self-harm. The advantages and vulnerabilities of each instrument were assessed, and the particular features of using these tools in the military population were also explored. In conclusion, although a large number of validated instruments for the assessment of suicide risk exist, it is not possible to recommend the use of a single tool, either for clinical and nonclinical populations or for military and civilian personnel. The endeavor of finding an algorithm for the assessment of suicide risk is still far from reaching its end, as new psychometric instruments and possibly a new paradigm for the phenomenon of self-harm are sorely needed.

Keywords: suicide risk, self-harm, depression, military personnel, veterans, suicide prevention

INTRODUCTION

Suicide prevention is one of the most challenging phenomena in clinical psychiatry due to the social impact of self-harm, its high prevalence, and the lack of unanimously accepted predictive models. More than 720000 individuals die by suicide each year, and self-aggression is the third leading cause of death among individuals aged 15 to 29 years old [1]. More than one in every 100 deaths worldwide occurs due to suicide, and methodological improvements are needed in order to increase the accuracy of reports regarding complete suicide and suicide attempts [2]. In this context, structured assessment of suicidal ideation and behaviors is an important aspect of the psychiatric clinical practice, and the development of validated instruments (scales, inventories, and questionnaires) for assessment of suicidal risk is essential for both civilian and military populations.

Suicide rates are still high among military personnel, both active and retired [3]. The Army Study To Assess Risk and rEsilience in Servicemembers (Army STARRS) is a large investigation targeting the prediction of suicide in active duty soldiers who were hospitalized (N=53769 participants), in the next year after discharge [4]. The incidence of suicide in this population was 12% of all US Army suicides, equivalent to 263.9 suicides per 100,000 person-years vs. 18.5 suicides per 100,000 person-years in the entire US Army [4]. This data indicates the need for more careful post-discharge monitoring of active duty soldiers, but the specific means to be implemented for this purpose are far from being clear. A potential contributor to the higher risk of suicide among military personnel has been the existence of stigmatizing beliefs since these can act as deterrents for help-seeking [3]. In a cohort study (N=153,736 patients) of US veterans, the risk assessment suggested that only a few variables were associated with subsequent suicide, especially suicidal ideation, firearm access, and preparatory behaviors, which is completely insufficient to develop a risk prediction algorithm [5]. According to the US Department of Veterans Affairs, the risk of suicide in veterans was 1.57 to 1.66 higher than in non-veterans between 2017 and 2020 [6].

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Searching for psychological predictors of suicide is but only one side of the complex process of identifying relevant contributors to the pathogenesis of suicide. Biological factors, such as chronic diseases, and social vulnerability factors, like stigmatization, migration, or bullying, cultural and economic influences, e.g., poverty, acculturation stress, being part of a cultural minority, transgenerational conflicts, etc. [7-12]. However, all these potential pathogenetic factors have intricate relationships, and disentangling them is necessary as part of constructing an evidence-based approach to a predictive model for self-harm behavior.

Based on all these data, it becomes clear that finding adequate tools for detecting the risk of suicide is essential for creating preventative measures and thus decreasing the incidence of completed suicide. To attain this objective, the current review focuses on the detection of the most validated and widely used psychometric instruments for the detection of suicide risk in military personnel, veterans, and civilians. It is expected that such an endeavor could provide the basis of an algorithm for the evaluation of vulnerable populations, as a screening strategy, and for the monitoring of at-risk groups during and after exposure to severe stressors. This review does not target only clinical populations derived from civilian or military environments but also non-clinical populations, which may be exposed to significant risk of suicide ideation and behavior.

MATERIALS AND METHODS

A narrative literature review was conducted by searching four major databases – PubMed, CINAHL, Google Scholar, and Clarivate/Web of Science – for all primary and secondary reports published between the inception of each archive and January 2025, using as keywords “suicide” OR “self-harm” AND “scale” OR “inventory” OR “questionnaire” OR “profile” OR “psychometric instrument” OR “psychometric tool” AND “civilian” OR “military personnel” OR “veterans. Only papers in English were selected. The inclusion criteria were adolescents and adults, clinical and nonclinical groups, civilian and military populations, primary outcomes related to suicide, clinician-rated and self-rated instruments, both prospective and retrospective studies, but also systematic reviews, narrative reviews, and meta-analyses. Exclusion criteria were undefined measurement methods, exclusively non-structured methods of evaluation, poorly defined study design, and children or unspecified population characteristics.

RESULTS

A number of 17 instruments dedicated to the measurement of suicide and suicide-related aspects were found during the literature search, and three tools that include at least one item related to suicide, that were investigated in multiple studies were also included in the analysis.

The **Suicide Attempt Self-Injury Interview** (SASII) was developed by Linehan et al. (2006) to assess the multiple factors associated with suicide attempts and self-aggressive behaviors without a clear suicidal intent [13]. According to the authors of this instrument, its major strength is the use of a standardized definition of suicidal and other self-injurious activities, allowing the practitioners to assess the suicidality/suicide intent regardless of the particular aspects and consequences of the acts themselves [13]. This tool also offers individual ratings for the components of lethality, such as the method used, the consequences of the gesture, and the therapy needed [13]. The scales of SASII are „suicide intent”, „lethality”, „rescue likelihood”, „risk/rescue ratio”, „suicide communication”, „interpersonal influence”, and „emotional relief” [13]. SASII allows for each episode of non-suicidal self-injury behavior to be coded separately and described by its characteristic details. The major variables are assessed by the interview and the frequency of self-injury behaviors, the medical treatment required secondary to the behaviors, and a set of four factors for each episode of non-suicidal behavior - medical risk, suicidal intent, instrumental intent, and impulsivity [13].

A study investigating patients (N=60) with repetitive nonsuicidal self-injury (NSSI) tried to validate subtypes of these behaviors, based on multiple self-report scales, and two structured interviews, SCID-5-CV (Structured Clinical Interview for DSM-5 Clinical Version) and SASII [14]. The results supported a two-subtype model, i.e., (a) substance abuse and suicide attempt subtype- with a higher rate of lifetime suicide plans, number of lifetime suicide attempts, higher severity of self-harm, borderline personality features, anger, posttraumatic manifestations, and difficulties in regulation of own emotions; (b) cutting and scratching subtype [14]. The use of SASII in this study supported the validity of this model and, consequently, the existence of clinical heterogeneity of individuals with NSSI [14].

In another study, SASII was combined with the Beck Scale for Suicide Ideation (BSI), Beck Depression Inventory (BDI), and Beck Hopelessness Scale (BHS), to characterize the self-harm behaviors in a group of Pakistani patients (N=221) [15]. The results showed the possibility of common causal mechanisms and processes underlying self-harm between the investigated population and other groups, with factors such as financial, relationship, or interpersonal difficulties being considered [15]. SASII was administered to collect data on details regarding the time, methods, circumstances, motivations, and treatment for self-harming behaviors [15].

According to a systematic review that explored self-harm measuring tools, seven such validated instruments were identified, but there was a high variation detected in their overall quality [16]. Out of the identified tools, SASII appeared to be the most detailed and psychometrically solid instrument currently available for measuring self-harm behaviors [16]. The other instruments identified were Self-Harm Inventory (SHI), Deliberate Self-Harm Inventory (DSHI), Self-Harm Behavior Questionnaire (SHBQ), Self-Injury Questionnaire (SIQ), Self-Injurious Thoughts and Behaviors Interview (SITBI), and Inventory of Statements About Self-Injury (ISAS) [16]. The reported reliability of SASII was α=0.63-0.93, and the convergent validity with therapist notes (r=0.76-0.86) and the medical records (r=0.75-0.82) were also high [16].

A study investigating the influence of NSSI onset age in adolescents is associated with the frequency of subsequent episodes of self-

harm (N=103 participants) showed that a lower age of onset and a longer duration of self-harm were both associated with an increased frequency of other NSSI episodes and a higher risk of a first suicide attempt [17]. Therefore, early identification of NSSI using validated instruments is an essential way to create adequate management strategies for these behaviors [17]. In this important study, SASII was used to collect data on most of the parameters targeted, including time, modality, and frequency of self-harm behavior [17].

A recent cross-sectional study evaluated the presence of factors associated with self-harm behavior during military service in the Israel Defense Forces and used SASII and the Columbia Suicide Severity Rating Scale (C-SSRS) to characterize this population [18]. A number of 1238 episodes of self-harm behavior were identified between 2017 and 2021 and included in the analysis [18]. NSSIs correlated with the presence of adjustment difficulties, and higher rates of previous psychiatric diagnoses were found in individuals with suicide attempts [18]. The risk of dying by suicide during military service was twice as high in soldiers with previous suicide attempts and psychiatric diagnoses [18]. Also, if these soldiers were serving in a combat unit, the risk of suicide was four times higher [18].

Another two-year prospective study explored the predictive value of NSSI for suicide attempts in a clinical sample of US active duty military personnel (N=152, mean age=27.53 years), using SASII and Beck Scale for Suicide Ideation (BSSI-C) [19]. All participants reported current suicidal ideation and/or had a suicide attempt during the last month [19]. The results showed 40% of soldiers with a history of NSSI and 25% of those with a history of suicide attempt made a suicide attempt during the two years of follow-up [19]. Soldiers with a history of NSSI were twice as likely to engage in another suicide attempt, but those with a previous suicide attempt had no increase in suicidal behavior vs. soldiers without a history of suicide attempts [19]. However, 30% of the soldiers with a suicide attempt in their history had engaged in NSSIs, and the total number of NSSIs was significantly associated with an increased risk for future suicide attempts [19].

The **Columbia Suicide Severity Rating Scale** (C-SSRS) is one of the most widely used instruments in Psychiatry to determine suicide risk, but it must be noted that it cannot replace a complete clinical assessment. The C-SSRS has very good convergent and divergent validity with other scales for assessing suicidal ideation and behavior, its subscales are sensitive to changes over time, and the suicidal ideation subscale has a moderately high internal consistency [20]. The C-SSRS is structured in such a way that it allows separate assessments of the severity and intensity of suicidal ideation, autolytic behavior, and lethality of the attempt [20]. The severity of ideation is rated on a five-point scale, the intensity of ideation subscale also on a 5-point ordinal scale (i.e., frequency, duration, controllability, deterrents, and reason for ideation), the behavior subscale is rated on a nominal scale (i.e., aborted, actual, and interrupted attempts, preparatory behavior, and NSSI), while the fourth scale is the lethality subscale for the assessment of actual attempts (there is a 6-point ordinal scale, and if the current lethality is zero, potential lethality of attempts is rated on a 3-point ordinal scale) [20].

The cut-off value of 27 on C-SSRS has very good sensitivity and specificity for classifying suicide attempts in the first three months, according to a prospective multicenter cohort study (N=804 patients with a recent episode of self-harm) [21]. The CSSRS and the Suicide Assessment Scale (SUAS) had a better chance to classify the suicide attempts in the first months but also during a one-year follow-up, although the cut-off value for long-term monitoring could not be established for either instrument [21]. The same study showed that the Suicide Intent Scale (SIS) was the only instrument able to classify suicides adequately at 3 and 12 months, with a cut-off score of at least 21 and at least 17, respectively [21].

C-SSRS had proven a sensitivity of 67% and a specificity of 76% for identifying suicidal behaviors at the follow-up (mean period of 64 days) in a large study (N=3776 patients) [22]. Negative life events were associated with a 2.4% subsequent risk of suicidal behavior, and patients reporting lifetime suicidal ideation with intent/prior suicide attempt had a 4 to 9 times higher risk to report prospectively suicidal behavior [22].

C-SSRS score includes information collected from the patient, but also from other significant sources, and has been validated in emergency settings, as well as in the outpatient population [23]. Also, C-SSRS has been validated in children and adolescents, military veterans, and patients with different psychiatric disorders [23]. The US Food and Drug Administration recommends the use of C-SSRS for clinical trials, and it has been approved by the Centers for Disease Control and Prevention to define and monitor suicidal ideation and behavior [23,24].

The administration of C-SSRS in a large sample of US veterans (N=15373) resulted in confirmation of concurrent validity by comparison with self-reports from the last three months and attempts documented in medical records [25]. Nevertheless, a significant number of discordant responses were reported [25]. The predictive value for future attempts was more than 80% [25]. Another study evaluated the psychometric assessment of C-SSRS and Suicidal Behaviors Questionnaire-Revised (SBQ-R) in 200 active-duty personnel and concluded acceptable reliability for both SBQ-R and C-SSRS ideation severity subscale, while the confirmatory factor analysis supported the SBQ-R, but not the self-reported version of C-SSRS [26]. Yet another study that included US military personnel with lifetime attempted suicide (N=121) used C-SSRS to test the hypothesis that NSSIs elevate the suicide risk; the results showed that a history of NSSI is relevant for increasing the service member's social alienation and acquired tendency for suicide, but did not correlate with the number of lifetime suicide attempts or the controllability of suicide ideation [27].

The **Scale for Suicide Ideation** (SSI) and its self-administered version, Beck Suicidal Ideation Scale (B-SSI), were developed by Beck et al. and are widely used in clinical studies, although their dimensional structure is debated in the literature [28-30]. For SSI, the internal consistency was high, and there were recorded moderately high correlations with clinical ratings of suicidal risk and self-administered measures of self-harm, while the sensitivity to changes in hopelessness and depression over time was also good [28]. For B-SSI, the

Cronbach alpha coefficient was 0.90, indicating high internal consistency for both paper-pencil and computer versions [29]. B-SSI has 21 items, and its items are scored on a 3-point Likert scale, with a total score varying from 0 to 38 [29,31]. The cut-off score of 6 for B-SSI was defined in a prospective study as presenting accuracy for future suicidal behavior, and a reduction to less than eight items with stochastic curtailment was sufficient for this purpose [32]. There is a version for the assessment of current ideation, i.e., the SSI-C, and another for the worst moment in the patient's life, i.e., the SSI-W, both with 19 items [33]. Both SSI-C and SSI-W were positively correlated with a diagnosis of mood disorder, a personality disorder, and measures of depression and hopelessness [33]. The internal consistencies of both scales were high, i.e., alpha 0.84 for SSI-C and 0.89 for SSI-W [33].

A study that involved US military service members showed that summing up five items of the B-SSI (i.e., 1, 2, 4, 6, and 15) is an acceptable strategy to shorten this tool while preserving the predictive value of 74% for a cut-off score ≥1 [34]. A study that included 39 Israeli soldiers (mean age 19 years) who were suicide attempters during their military service included evaluations using B-SSI, C-SSRS, and Suicide Intent Scale (SIS); the results supported seven items of the B-SSI, one of the C-SSRS and two of the SIS were associated with severe suicide attempts [35].

The **Beck Hopelessness Scale** (BHS) explains hopelessness through the concept of a cognitive schema focused on unfavorable expectations, both in terms of the short-term and long-term perspective. This instrument, developed by Beck et al. in 1974, includes 20 items with a dichotomous format, and its primary use is the evaluation of suicide risk in clinical and non-clinical adult populations [36,37]. The original version has three factors, i.e., affective, motivational, and cognitive, but other alternative factorial structures have been suggested [37]. The BHS can be self-administered, as well as administered by the clinician, to hospitalized and non-hospitalized subjects, in specialized outpatient clinics or in emergency hospitals [37]. The predictive validity of BHS has been confirmed by multiple studies in patients with psychiatric disorders [38]. The Cronbach alpha was 0.81 in the general population, according to a study (N=1500 participants) [39]. Shorter versions of BHS have been created, in order to increase its applicability for clinical populations, such as BHS-9 or BHS-4 [38,40,41].

A study focused on improving the detection and prediction of suicidal behavior among military personnel by measuring suicidal beliefs used a set of tools, BHS included, in order to evaluate a new instrument, i.e., the Suicide Cognitions Scale (SCS) [42]. Another study included BHS in the set of instruments dedicated to the assessment of psychological pain in suicidal veterans and concluded that psychological pain accounted for the most shared variance for suicidality, but most relevant correlations were determined for the C-SSRS [43].

The **SAD PERSONS scale** is a mnemonic with each letter representing a risk for suicide, and the total score varies from 0 to 10 [44]. The interpretation is low risk for scores from 0 to 4, medium risk from 5 to 6, and high risk from 7 to 10 [44]. Modified SPS (M-SPS) is characterized by a substitution of new factors and changes in scoring (low risk = 0-5, medium risk = 6-8, and high risk = 9-14) [45]. These are simple and easy-to-administer instruments developed for screening suicide risk in community mental health settings [46].

The SAD PERSONS Scale (SPS) was assessed in a systematic review (N=9 studies) and the data were considered insufficient to support its use in the assessment or prediction of suicidal behavior [47]. In a large study (N=5462 consecutive adults evaluated by psychiatrists in tertiary emergency departments), the suicide rates at six months, 12 months, and five years were determined [48]. Low-risk assessed by SPS at baseline died by suicide at 6 and 12 months, while high-risk scores were significantly associated with death by suicide over the five-year interval by both SPS and M-SPS [48]. Another study (N=4019 consecutive referrals to psychiatric services in emergency departments) used both SPS and M-SPS and showed that high-risk baseline values presented low sensitivity and low positive predictive power [49]. SPS did not predict suicide better than chance in this study, but when only the five original scale items that accounted for the higher proportion of suicide attempt variance were used, the sensitivity was 93.5%, and the predictability was 5-fold higher for suicide attempt presentation [49].

To evaluate the possibility of using SAD PERSONS in veterans, a study (N=271 participants from the Midwest Veterans Affairs Medical Center) concluded that the rate of false-positive and false-negative results is unacceptable [46].

The **Reasons for Living Inventory** (RFLI) was created by M. Linehan in 1983, and it consists of a checklist of motives for choosing to continue living, instead of self-harming with suicidal intent [50]. RFLI has 72 items (long version) or 48 items (short version). The six factors originally describing the structure were replicated by other authors, the internal consistency was proven acceptable (Cronbach alpha = 0.72-0.92), and the test-retest reliability was also demonstrated [51]. A high score on RFLI predicted fewer future suicide attempts in the next two years interval for initially hospitalized women with depression, but not for men, in a study (N=386 participants) [52].

RFLI was administered in a veteran male population (N=421) with various combat exposures and a history of suicide attempts, and the initial results were supportive of this tool being used in the specified population [53]. The reliability and validity of RFLI were confirmed by exploratory factor analysis and bi-factor analysis, correlates between total scores and subscale scores, and estimates of internal consistency reliability on the original instrument subscale scores [53].

The **Reasons for Living Scale-Military Version** (RFL-MV) was created later by Deutsch & Lande, who added 20 items to the items of RFLI-SV, items specifically designed to reflect the military environment characteristics [54]. RFLI-MV was evaluated on 200 patients from the military personnel, and a six-factor structure was defined, with the subscale of "Military Values" reflecting the coherence of the new dimension added to Linehan's version of the tool [54].

The **Reasons for Living versus Reasons for Dying Assessment** is another tool that combines the protective factors and triggers for

suicide, to offer a more complete interpretation of the individual's risk [55]. In a study (N=49 suicidal university counseling center patients), 173 reasons for living and 145 reasons for dying were obtained and structured in eight and, respectively, nine categories, and different chi-square results for the two dimensions were obtained, suggesting a different salience of those dimensions for suicidal patients [55]. The evaluation of the reasons for dying vs. reasons for living (RFD-RFL) index in military psychiatric inpatients (N=167) following a suicide event showed that family was the most reported supporting factor (40% of the participants), while the most frequently invoked reasons for dying were general descriptors of self (27%), general statements about escape (19%), and others/relationships (19%) [56]. Higher values of this index were associated with a more significant wish to die vs. wish to live, higher levels of hopelessness, and a history of multiple suicide attempts [56]. When individuals can find more reasons for dying than for living, this could be indicative of a higher suicide risk [56].

Another study evaluated the risks of dying vs. the risks of living in patients admitted after a suicide attempt (N=60) and a monitoring period of 24 months, showing that the number of reasons for dying was the most relevant predictor for increased suicidal ideation at baseline, and reasons for dying, depressive symptoms and baseline suicide ideation predicted suicide reattempt up to 12 months later [57]. In the mediation analysis, reasons for dying mediated the effect of depressive symptoms at baseline and one-year follow-up on suicidal ideation [57]. However, reasons for living did not prove themselves a protective factor against suicide risk [57].

The **Suicide Opinion Questionnaire** (SOQ) was designed to assess the different approaches to the event of suicide in different cultures and demographic groups, being administered in multiple settings and populations, e.g., college students, medical students, and mental health professionals [58,59]. The test-retest reliability coefficient for SOQ was r=0.78 to 0.91, and the intercorrelations between the scales were in the range of r=0.20 [59]. An exploratory factor analysis detected a weak 2-factor structure in one study, and this model failed in the second study, thus raising doubts about the factorial structure of this instrument [60].

In a group of undergraduate volunteers (N=738), the responses to SOQ were compared between attempters, contemplators, and nonattempters, and a factor analysis indicated the existence of seven factors, with two significant functions discriminating between the respondents based on their gender and prior suicide history [61]. In another study (N=91 psychiatric inpatients admitted for suicidality), the SOQ was included in a battery of tests focused on suicidality, and the results showed that 20 items differed between patients with suicide attempts vs. those without at baseline and follow-up [58]. The linear discriminant analysis supported the sensitivity and specificity of the test for post-discharge suicide attempts for the 9-item scale [61]. The potential of SOQ to be useful in identifying prospectively the individuals with a risk of suicide is supported by the available data, but maybe including it in a module of tests would be more beneficial than using it alone, and using it in high-risk patients would increase its predictive power [58].

In a study (N=1758 Marine Non-Commissioned Officers) that evaluated the usefulness of SOQ in military personnel, a 4-factor structure was detected, which accounted for approximately 30% of the total variance, with sex, education, and prior exposure to suicide within the individual's military unit being significantly associated with suicide options [62].

The **Suicide Trigger Scale** (STS) is a self-report instrument to assess the trigger states for suicide, which showed a strong internal consistency, with a Cronbach alpha of 0.94, and good validity related to past suicidal behavior [63,64]. Its third version, STS-3, showed that scores may be predictive for post-discharge suicide attempts [63]. This scale has 42 items and three factors explaining 43% of the variance- Frantic Hopelessness, Ruminative Flooding, and Near-Psychotic Somatization [64]. In a validation study (N=183 adult psychiatric patients with suicidal ideation/attempt in the psychiatric emergency room) with a 1-year follow-up, suicidal subjects with suicide attempt history had a mean of 7 points more than those without such a history, and Frantic Hopelessness was a significant predictor for current suicide attempt, if only attempters requiring at least some medical attention were considered [64].

A subset of six items on the STS-3 improved the prediction of post-discharge suicide attempts, and patients with ultra-high scores differed significantly from those with ultra-low scores on mood intensity, depression, impulsiveness, abuse history, and attachment security, in a validation study (N=161 adult psychiatric patients admitted to hospital for suicidal ideation or attempt) [63].

The **Manchester Self-Harm Rule** (MSHR) was based on an exploration of multiple variables related to self-harm, i.e., those which include the nature of the act, details of self-harm episode, the main reason for current distress/precipitant to the episode of self-harm, social and demographic information, clinical history, and current medical state [65]. The four questions of MSHR refer to the history of self-harm, previous psychiatric treatment, current psychiatric treatment, and benzodiazepine taken as an overdose [65]. The tool has a sensitivity of 97%, a specificity of 26%, and a positive predictive value of 22% [65]. A related tool is the ReACT Self-Harm Rule, derived from a prospective cohort study, which analyzed 29571 self-harm presentations to hospital Emergency Departments [66]. Recent self-harm (in the last year), living alone/homelessness, cutting as a method of self-harm, and treatment for an ongoing psychiatric disorder were factors associated with higher risk [66]. This tool had 95% sensitivity and 21% specificity, with a positive predictive value of 30%, identifying 83 out of the subsequent 92 suicides [66].

The **Suicidal Behaviors Questionnaire** (SBQ) is a 34-item self-assessment instrument for suicidal thoughts and behaviors, developed by Linehan in 1981 [67]. Another, much shorter form of SBQ, containing only four items, and another 14-item tool [67-60]. Other versions of SBQ are available, but this multitude of variants precludes the finding of definite recommendations and psychometric properties for each population (adolescents vs. adults, clinical vs. nonclinical) [70,71]. SBQ 4-item version correlated with SSI scores significantly and it is recommended as a screening tool [71]. A revised version exists, SBQ-R, with four items, which benefits from empirical support as a risk measurement tool that differentiates between suicide-risk and non-suicidal risk individuals at a cut-off value of 7 (nonsuicidal sample) or 8 (clinical samples) [70]. SBQ-R has good internal consistency (Cronbach alpha = 0.97), convergent validity, a one-factor solution (89.5% of the total variance), good sensitivity (82%), and specificity (63%) when differentiating between

serious planner/ideator and attempter groups [70]. SBQ-R has been translated and validated in numerous languages due to its brevity, ease of administration, and good psychometric properties [72,73].

The first item ("Have you ever thought about or attempted to kill yourself?") of the SBQ-R and the total scores have been recommended for use in both clinical and non-clinical populations [70]. A Bayesian approach to the SBQ-R supports the usefulness of item 1 for identifying other parameters of suicide, e.g., thoughts and behaviors [74]. The same analysis showed the relevance of each SBQ-R item when exploring the suicide elements and suggests that the individual item evaluation can offer clinically meaningful insights [74].

SBQ-R and the Risk-Taking Questionnaire 18 (RT-18) helped differentiate between individuals with suicide attempts and healthy controls by the variable "risk-taking" [75]. Individuals who reported a recent suicide attempt also had a higher tendency to sensation-seeking and impulsive behavior as correlates to risk-taking behaviors [75]. SBQ-R and other instruments were administered in a study (N=1310 medical graduate students) that suggested a significant risk of suicide (6.7%) among specific populations of students in China [76]. Poor relationships with the supervisor increased the risk of suicidality, suggesting more care is needed when educators are interacting with medical students, especially if the last ones are coming from families with low socio-economic status [76]. The administration of the original SBQ version in clinical populations was also explored in a study with patients diagnosed with bipolar disorder (N=98 participants); the association between anxiety dimensions and SBQ scores was relevant in a similar way to the association with depressive rumination [77]. Depressive rumination was a significant predictor of higher SBQ scores, and emotional processing was a significant predictor for lower SBQ scores for women and the entire sample [77].

In an exploration of the temperament dimensions most associated with the progression from ideation to suicide attempts, an adapted version of SBQ with 17 items was used together with the Affective and Emotional Composite Temperament Scale (AFECTS) [78]. The depressive, cyclothymic, and volatile were the most frequently associated temperaments with suicide attempters, while the cyclothymic, depressive, and euphoric temperaments were associated more with progression from ideation to suicide attempt [78].

The use of SBQ-R in a study that included post-9/11 veterans and service members seeking treatment for psychiatric symptoms (N=261 participants) reflected the high rates of suicidal ideation and behavior in this population [79]. A rate of 40% was obtained in this sample, based on the SBQ-R, indicating a high risk of suicide [79]. Negative posttraumatic thoughts about self, gender, military branch of service, higher levels of severity, anger and anger expression, less impulse control, and lower rank, all these factors were associated with a higher risk of suicidal ideation and behavior [79].

Another retrospective analysis included 3356 cases (age 55+) collected from the US National Health and Resilience in Veterans Study (2019-2020) and used SBQ-R in correlation with various demographical and personal history data [80]. The rate of suicidal ideation during the last year was 6.6%, for lifetime suicide plans was 4.1%, and for future suicide intent 0.9% [80]. A higher level of loneliness and a lower level of purpose in life was most strongly associated with last year's suicide ideation, while a lifetime history of major depressive disorder correlated with suicide plans and suicide attempts [80].

In another cohort study (N=3078 US military veterans), the rates of suicide ideation and suicide attempts did not present higher values during the COVID-19 pandemic vs. pre-pandemic level, but a small percentage of veterans (2.6%) developed new-onset suicidal ideation during the pandemic [81]. SBQ-R items 1 and 2 were used in this study, together with the UCLA Loneliness Scale, Alcohol Use Disorders Identification Test, Life Events Checklist for DSM-5, Adverse Childhood Experience Questionnaire, Medical Outcome Study Social Support Scale-5, and the Coronavirus Health and Impact Survey [81].

The **Military Suicide Attitudes Questionnaire** (MSAQ) is a 32-item instrument with a four-factor structure designed to be used by military service members [82]. The confirmatory analysis included 317 US military personnel, and good levels of test-retest reliability were found; the four factors identified were "individual-based rejection vs. acceptance", "psychache vs. pathological", "unit-based acceptance vs. rejection", and "moral vs. immoral" [82]. The validation study did not control for social desirability, which may be an important limitation [82].

Two different studies of MSAQ validation included 200 and 1116 individuals, respectively, from the military environments, and factorial analyses support the previously reported four-factor structure [3]. The reliabilities ranged from 0.77 to 0.83; men had more negative suicide-related beliefs vs. women, and discomfort and unacceptability beliefs were more positively associated with perceived barriers to care [3].

The **Suicide Probability Scale** was developed in 1982, it contains 36 items and is a self-report tool [83]. This scale was designed to assess suicide risk in adolescents and adults, and it only takes 5 to 10 minutes to complete [83]. The score is obtained by adding the answers using a 4-point scale; there are four factors: Hopelessness, Suicide Ideation, Negative Self-evaluation, and Hostility [83]. The Cronbach alpha for this scale was 0.92 in a sample of hospitalized patients with psychiatric disorders, and the results correlated with the scores on the Beck Depression Inventory-II and Adult Suicidal Ideation Questionnaire [83,84]. The utility of this scale did not confirm its utility in adolescents to assess suicide potential, and the factorial structure was not confirmed [85]. However, other studies support its utility for this population, with good convergent and discriminant validity [86].

The **Sheehan Suicidality Tracking Scale** (SSTS) has a standard version with 16 items that assess the seriousness of suicidality, the frequency of key phenomena, and the overall time spent in suicidality on a Likert scale (0-4) [87]. It is available in a patient and clinician-rated format, but a version that reconciles the eventual discrepancies between the previous two in specific items also exists [87]. There is a clinically meaningful change version of the SSTS and a pediatric version (P-SSTS) [87,88]. Another version of SSTS (v.10)

has an 8-item instrument that measures variables related to self-injury, self-harm, suicide ideation and suicide attempt, with each item being scored on a Likert scale, from 0 (absent) to 4 (extremely) [89]. SSTS proved good convergent, divergent, internal consistency, and test-retest stability, according to a cross-sectional study (N=303 undergraduate students) [89]. All SSTS items were loaded on a single factor, suggesting it could be useful as a screening tool [89].

In a clinical study (N=82 subjects with generalized anxiety disorder) that assessed an experimental corticotropin-releasing factor antagonist vs. placebo and an active comparator (escitalopram), SSTS had a good sensitivity, as well as item 3 on the Hamilton Depression Rating Scale for Depression (HAMD) for identification suicidal thoughts or behaviors (100% and 63%, respectively) [90].

In another clinical trial, which investigated the evolution of depressive symptoms during citalopram + lithium vs. citalopram + placebo (N=80 patients), SSTS and Montgomery Asberg Depression Rating Scale (MADRS) were administered as primary measures, and the results showed a larger reduction on SSTS vs. MADRS (43% vs. 25%) [91]. A subgroup of patients who received lithium and citalopram had higher SSTS remission rates (45% vs. 19%) [91].

The **InterSePT scale for suicidal thinking** (ISST) has 12 items and assesses the current suicidal ideation in patients with chronic psychosis [92]. In two studies, with 22 inpatients with schizophrenia and schizoaffective disorders who had a recent suicide attempt or ideation, and 980 patients with the same disorders and a history of suicidal ideation in the past 36 months, respectively, ISST was used as a monitoring tool for two years, together with Clinical Global Impression for Severity of Suicide (CGI-SS), Calgary Depression Scale (CDS), Scale of Functioning (SOF) and Positive and Negative Symptom Scale (PANSS) [92]. The Cronbach alpha was high (0.86-0.89) for individual items, as well as the overall value (0.88) [92].

The ISST total score was highly correlated with the CGI-SS by the blind rater [92]. During the InterSePT trial that evaluated clozapine efficacy, ISST and CDS were administered to predict suicide attempts or hospitalizations [93,94]. The results of the InterSePT trial suggest both tools may be useful for assisting clinical decision-making regarding the suicide risk in patients with chronic psychoses [93].

The **Acquired Capability for Suicide Scale** (ACSS) is a 20-item tool administered based on the Interpersonal Psychology Theory of Suicide and assesses factors that facilitate individuals to acquire the ability to engage in suicidal acts, such as fearlessness about death and habituation to pain (which are considered needed to overcome the self-preservation reflexes) [95]. The items are scored on a Likert scale, from 0 to 4, and the reliability of the scale was calculated in a study to be alpha=0.80 [95]. In a study that included suicide ideators, depressed suicide attempters, and control participants (N=44 participants), based on the ACSS administration, suicide attempters showed the highest level of fearlessness and pain insensitivity and a greater history of painful and provocative life events [96].

A systematic review evaluated the use of ACSS among US military personnel and veteran samples (n=31 studies), and the results, based on a high risk of bias sources, indicated inconsistent findings across studies [97]. The authors of the respective analysis recommended caution in the interpretation of ACSS empirical data [97].

Regarding the instruments for the assessment of depression, which include items specific for suicidality, three tools were analyzed based on their wide use in clinical and epidemiological trials and their validated psychometric profile.

The **Beck Depression Inventory** (BDI) is among the most widely used self-rating scales for depression severity, with a long history of being administered in therapeutic and other various studies, starting from its publication in 1961 [98]. The internal reliability was confirmed in clinical and nonclinical samples and the average Cronbach alpha was 0.75; the factorial validity of this instrument showed a variable number of factors, from 1 to 9, and the convergent and discriminant validity was also proven [98]. Of interest for this review is the suicide item for its predictive value for deaths by suicide, which is scored from 0 (“I do not have any thoughts of killing myself”) to 3 (“I would kill myself if I had the chance”) [99].

A study that included 5319 patients showed that the single BDI item significantly predicted both deaths by suicide and repeated suicide attempts [100]. Each successive rating of the suicide item on BDI conferred greater risk, suggesting a direct proportionality between the two values, with an optimal cutoff score of ≥1 for suicide and ≥2 for suicide attempts providing the maximum equilibrium between sensitivity and specificity [100]. A value of ≥1 on item 9 on BDI-II was also used as a marker for suicide ideation in a study that concluded type D personality could be a risk factor for suicide ideation in individuals with major depression with (N=318) [101].

The **Hamilton Rating Scale for Depression** (HAMD) represents, in fact, a variety of scales that differ by the number of items and modalities of administration [102]. HAMD is a valid and sensitive clinimetric index and requires informed use, with the specific type of HAMD to be selected for each context [102]. The HAMD includes an item on the assessment of suicide risk (scored from 0 – “absent” to 4- “attempts at suicide”) [99]. It correlates significantly with the number of suicide attempts and the age at the first attempt in a study with 281 suicide attempters [103].

The **Montgomery Asberg Depression Rating Scale** (MADRS) is a 10-item tool dedicated to the measurement of depressive severity that includes an item dedicated to „suicidal thoughts” (scored from 0 – „enjoys life or takes it as it comes” to 6 – „explicit plans for suicide when there is an opportunity/active preparations for suicide”) [99]. This item of MADRS and the suicide item on HAMD correlated with the first five items on SSI at a significant level (r>0.80) in a study that assessed the efficacy of ketamine on the severity of depression [99].

DISCUSSION

Table 1 presents a synthesis of the instruments explored in this review. All of the reviewed instruments present benefits and shortcomings, making the unanimous recommendation of only one such instrument for evaluating suicide risk highly unlikely. However, based on the characteristics of each population or group that needs to be explored (screened or monitored) for suicide risk, a certain set of tools may be selected from the available resources, depending on their psychometric properties and previous studies' results available.

Table 1: Analysis of the psychometric tools for the assessment of suicide

Psychometric instrument	Studies on active military personnel and /or veterans	Studies on the civilian population	Advantages	Disadvantages	Observations
SASII	Yes [18,19]	Yes [14-17]	Standardized definition of suicidal and other self-injurious activities; individual ratings for the components of lethality, such as the method used, the consequences of the gesture, and the therapy needed.	More studies on military personnel are needed to confirm its psychometric properties in this population and its predictive power. The necessary time to administer is quite long.	Reliability and convergent validity were determined. Studies that compared this instrument with other validated instruments were performed. Evaluates both suicidal and non-suicidal self-injury behaviors.
C-SSRS	Yes [23,25-27]	Yes [21-23]	Separate assessments of the severity and intensity of suicidal ideation, autolytic behavior, and lethality of the attempt.	Data about the self-reported version of C-SSRS in military personnel is insufficient to recommend its use in this population.	Very good convergent and divergent validity with other scales used for the same purposes.
SSI, B-SSI, SSI-C, SSI-W	Yes [34,35]	Yes [28-20,33]	The set of SSI scales offers a more nuanced choice for different settings and populations.	The dimensional structure is debated.	Good internal consistency and sensitivity to changes for several important suicide factors.
BHS	Yes [42,43]	Yes [38]	Evaluation of suicide risk in clinical and non-clinical adult populations. Self-administered or clinician-administered.		Demonstrated predictive validity and reliability. Shorter versions of this tool have been created.
SPS, M-SPS	Yes [46]	Yes [47-49]	Ease of administration; the existence of a shorter version.	The predictive value of suicidal behavior was considered inconsistent.	A further refinement of the items included in this scale may be needed to increase its predictive value.
RFLI, RFL-MV	Yes [53,54]	Yes [51,52]	A self-administered version and a clinician-administered version exist. A military version of this scale also has been published.	The RFLI scales (both long and short versions) are quite long due to the large number of items.	A checklist of motives for living that can represent useful resources to work with in psychotherapy. Acceptable internal consistency and test-retest reliability.
RFD-RFL Index	Yes [56]	Yes [55,57]	It combines two distinct lists of reasons for living and reasons for dying.	It is a complex and long instrument to administer (17 domains).	Reasons for living are not a valid protective factor against suicide risk. However, reasons for dying may be useful as a predictor of suicide risk.
SOQ	Yes [62]	Yes [58,61]	It was constructed to be sensitive to cultural and demographic variability.	Different studies did not support the factorial structure.	Test-retest reliability was demonstrated. It was administered in different groups. It has the potential to help identify the risk of suicide.
STS	None were identified	Yes [63,64]	It has several versions, some of them presenting scores with good predictive values.	More studies are needed to support its utility, especially in military personnel.	Good internal consistency and validity related to past suicidal behavior. A subset of items could be further explored for higher predictive value than the overall scale.

MSHR	None were identified	Yes [65]	Based on multiple variables related to self-harm	Psychometric properties are poor.	Good sensitivity but poor specificity and low predictive value.
ReACT SHR	None were identified	Yes [66]	Based on a large populational study, and includes multiple variables related to suicide.	More research is needed to validate this instrument.	Good sensitivity but poor specificity and low predictive value.
SBQ, SBQ-R	Yes [79-81]	Yes [70,72,73,75-78]	Many versions of this instrument exist. It was explored in multiple studies that enrolled veterans.	Psychometric properties are poorly defined, except for SBQ-R.	It was extensively explored in both military and civilian populations.
MSAQ	Yes [3,82]	Not applicable	It was explored in two studies with US military personnel.	The currently available studies have methodological limitations.	More studies are needed to explore the validity of this instrument.
SUPS	None were identified	Yes [83-86]	It is a short instrument, easy to administer.	It is a self-report tool. The factorial structure is debated.	Good validity and reliability. The utility of this tool in adolescents to predict suicide was not confirmed.
SSTS	None were identified	Yes [89-91]	Patient and clinician-rated format, and a version that reconciles the differences between the two also exists. A shorter version exists.	No study was identified with military populations.	Good convergent, divergent, internal consistency, and test-retest stability. Only one factor was identified: good screening tools.
ISST	None were identified	Yes [92]	A valuable instrument for assessing suicidal ideation in patients with schizophrenia spectrum disorders.	It applies to a limited population, i.e., a clinical population with chronic psychoses.	High construct validity, good correlation with other scales.
ACSS	Yes [97]	Yes [95,96]	Short, easy-to-administer tool.	Caution is recommended in the interpretation of this scale's results in the military population.	Good validity and reliability.
Scales with single items evaluated for suicide predictive power					
BDI - item 9	None were identified	Yes [99-101]	The suicide item predicted deaths by suicide and suicide attempts.	Insufficient data to support scores on single items as independent predictors of suicide.	Good internal reliability in clinical and nonclinical samples for depressive disorders.
HAMD – item 3		Yes [103]	The suicide item correlated with the number of suicide attempts.		Valid and sensitive tool for depression.
MADRS – item 10		Yes [99]	Short and easy-to-administer tool. The suicide item correlated with items on SSI.		A useful tool for the quantification of depressive symptoms across age intervals.

SASII= Suicide Attempt Self-Injury Interview, C-SSRS= Columbia Suicide Severity Rating Scale, SSI= Scale for Suicide Ideation, B-SSI= Beck Suicidal Ideation Scale, BHS= Beck Hopelessness Scale, SPS= SAD PERSONS, M-SPS= Modified SAD PERSONS, RFLI= Reasons for Living Inventory, RFL-RFD= Reasons for Living versus Reasons for Dying Assessment, RFL-MV= Reasons for Living- Military Version, SOQ= Suicide Opinion Questionnaire, STS= Suicide Trigger Scale, MSHR= Manchester Self-Harm Rule, ReACT SHR= ReACT Self-Harm Rule, SBQ= Suicidal Behaviors Questionnaire, MSAQ= Military Suicide Attitudes Questionnaire, SSTS= Suicide Probability Scale Sheehan Suicidality Tracking Scale, ISST= InterSePT scale for suicidal thinking, ACSS= Acquired Capability for Suicide Scale, BDI= Beck Depression Inventory, HAMD= Hamilton Rating Scale for Depression, MADRS= Montgomery Asberg Depression Rating Scale

A prospective comparative analysis of multiple scales for the assessment of suicide risk included MSHR, ReACT Self-Harm Rule, SAD PERSONS, M-SPS, and Barratt Impulsivity Scale (BIS) in patients who would repeat self-harm within six months [104]. By evaluating 483 episodes of self-harm, the recurrence rate was 30%, and the sensitivity of these tools varied from 1% for SAD PERSONS, to 97% for MSHR [104]. The positive predictive value also varied, from 13% for M-SPS to 47% for the clinician assessment of risk [104]. The authors of the respective study concluded that risk scales for self-harm have limited clinical utility, as they are no better than clinician or patient ratings of risk [76]. A secondary analysis of data collected from multicenter prospective cohort studies showed that some individual items outperformed the scale in which they are included, but no items were superior to clinician or patient risk estimations

[105]. Based on the data from the same analysis, the use of suicide risk scales was less cost-effective than the clinician and patient ratings based on QALY (Quality-Adjusted Life Years) exploration [106].

A systematic review that evaluated the level of evidence for instruments assessing the suicide risk (n=21 studies) included 15 such tools and for the outcome suicide attempt, SPS had a sensitivity of 15% with a specificity of 97%, MSHR 97% and 20%, respectively, ReACT a similarly low specificity with MSHR; BHS presented a sensitivity of 89% and a specificity of 42% for the outcome suicide [107].

A direct comparison of the psychometric properties of CSSRS, STS, and SSTS in 199 psychiatric inpatients was conducted in a randomized manner by three trained judges [108]. All three assessments had very good accuracy for suicidal ideation and attempts (k=0.72 to 1.00, and 0.82 to 0.95, respectively), with an interrater agreement about CSSRS categories being more varied (k=0.48 to 1.00) [108]. Cronbach alpha value was less than 0.55 for CSSRS ideation and 0.78-0.92 for STS and SSTS [108]. The administration of any of these three instruments would improve reliability vs. unstructured assessment in the evaluation of suicidal ideation and behavior [108].

A study included 40 subjects with suicidal ideation and behavior who were interviewed using the InterSePT Scale for Suicidal Thinking-Plus, the SSTS, and the CSSRS, administered in a random sequence [109]. An agreement between these scales and the 2012 Food and Drug Administration (FDA) Classification Algorithm of Suicide Agreement categories was sought [109]. SSTS and InterSePT scale had an acceptable agreement with CSRSS in the detection of passive ideation, active ideation with method, intent, and plan, completed suicide, preparatory actions, and self-injurious behaviors [109]. However, these tools did not detect the presence or absence of other active suicidal ideation combination categories and aborted and interrupted attempts [109]. These results show the importance of validity exploration regarding the widely used scales for suicide risk assessment and the concordance with the FDA categories [109].

The use of single items from validated scales for depression as indicators for the assessment of suicidal ideation is a debated approach in clinical practice. A comparison of BDI and HAMD suicidal items and SSI scores was conducted in 281 suicide attempters and a positive correlation between the first two and the specific scale for suicide scores (SSI) [103].

The importance of searching for chronic diseases as predictors for suicide that can interfere with mental health due to negative impact on multiple levels (i.e., low functionality, poor quality of life, pain, low self-esteem) can not be overemphasized [110-113]. Therefore, any predictive model for suicide should take into account not only personality features, psychiatric symptoms, and actual psychological stressors but also organic diseases and their essential effects on mental health. This involves the necessity of a complex evaluation of individuals with a risk of suicide by a team of specialists, not only psychiatrists and clinical psychologists.

Treatment of the pathological background in patients with suicide risk can not be overemphasized [114-117]. Although significant advances in the field of psychopharmacology can be observed, as well as multiple psychotherapies focused on reducing the risk of self-harm, it is essential to note that no single intervention can be appropriate for all cases with self-harm tendencies, due to the unique configuration of vulnerability factors and triggers that exist in each case.

The current review's limitations are related to its narrative design, which explains why important sources may be missed from the analysis and the lack of assessing the quality of each report. The review's strengths are its focus on clinical tools used for military and civilian populations and the inclusion of psychometric properties together with relevant clinical and epidemiological studies for each instrument.

Directions for further research in this field are the need to further investigate the psychometric properties of some scales presented in this review, like MSAQ, which is dedicated to military personnel, and the comparative exploration of such instruments focused on clinical and non-clinical samples, to highlight the strengths and vulnerabilities of each. The final purpose of further research could be the construction of an algorithm able to detect individuals vulnerable to self-harm behavior.

CONCLUSION

Many good-quality, validated instruments allow for assessing the risk of suicide in civilian populations, and some of them have been explored in military personnel, like SBQ, C-SSRS, SASII, SOQ, etc., while others have been constructed especially for military populations, like MSAQ. Unfortunately, each of these tools has shortcomings that are expected to be corrected by further research.

Therefore, any algorithm for the detection of suicide risk based exclusively on the existing scales, interviews, and questionnaires would be vulnerable to a more rigorous analysis since the complex pathogenesis of the suicide phenomenon would impair its predictability.

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The author declares no conflict of interest. No artificial intelligence automatically generated text was inserted in this manuscript, and no image was previously published in another journal or is under consideration of being published elsewhere. This research received no external funding.

Authors' contribution

As the only author, I assume the responsibility for data collection, writing, and revision of the manuscript.

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References:

1. World Health Organization. Suicide. Retrieved online at https://www.who.int/news-room/fact-sheets/detail/suicide (accessed 01 Dec 2024).

2. Lovero KL, Dos Santos PF, Come AX, Wainberg ML, Oquendo MA. Suicide in Global Mental Health. Curr Psychiatry Rep. 2023;25(6):255-262. doi: 10.1007/s11920-023-01423-x.

3. Cramer RJ, Montanaro E, VanSickle M, Cacace S, Zabelski S, Smith EL, et al. A psychometric assessment of the Military Suicide Attitudes Questionnaire (MSAQ). Psychiatry Res. 2022;317:114849. doi: 10.1016/j.psychres.2022.114849.

4. Kessler RC, Warner CH, Ivany C, Petukhova MV, Rose S, Bromet EJ, et al.; Army STARRS Collaborators. Predicting suicides after psychiatric hospitalization in US Army soldiers: the Army Study To Assess Risk and rEsilience in Servicemembers (Army STARRS). JAMA Psychiatry. 2015;72(1):49-57. doi: 10.1001/jamapsychiatry.2014.1754.

5. Saulnier KG, Bagge CL, Ganoczy D, Bahraini NH, Jagusch J, Hosanagar A, et al. Suicide Risk Evaluations and Suicide in the Veterans Health Administration. JAMA Netw Open. 2025;8(2):e2461559. doi: 10.1001/jamanetworkopen.2024.61559.

6. Morral AR, Schell TL, Smart R. Comparison of Suicide Rates Among US Veteran and Nonveteran Populations. JAMA Netw Open. 2023;6(7):e2324191. doi: 10.1001/jamanetworkopen.2023.24191.

7. Marinescu I, Enătescu VR, Ghelase ŞM, Marinescu D. Neurobiological arguments for a pathogenic multifactorial disconnective model of cognitive disorders from Alzheimer's disease in elderly people. Rom J Morphol Embryol. 2017;58(4):1165-1173. PMID: 29556605.

8. Enache A, Eftimie LG, Graur AM, Glogojeanu RR, Geambasu A, Voinea OC, et al. Assessment of cerebral tumors and metastases by two-photon excitation microscopy. RJMM 2023;CXXVI(4):418-423. https://doi.org/10.55453/rjmm.2023.126.4.11.

9. Sezgin Y, Hacioglu Y, Kaplan AK. Comparison of serum vitamin D levels with glucose, lipid, and other biochemical parameters: A cross sectional study. RJMM 2023;CXXVI(3):331-336. https://doi.org/10.55453/rjmm.2023.126.3.14

10. Manea MM, Sirbu A, Dragos D, Dobri AM, Sirbu AG, Tuta S. Epileptic seizures as the first manifestation of Fahr's syndrome. Acta Endocrinol (Buchar). 2020;16(3):370-374. doi: 10.4183/aeb.2020.370.

11. Chu J, Robinett EN, Ma JKL, Shadish KY, Goldblum P, Bongar B. Cultural versus classic risk and protective factors for suicide. Death Stud. 2019;43(1):56-61. doi: 10.1080/07481187.2018.1430085.

12. Maharajh HD, Abdool PS. Cultural aspects of suicide. ScientificWorldJournal. 2005;5:736-46. doi: 10.1100/tsw.2005.88.

13. Linehan MM, Comtois KA, Brown MZ, Heard HL, Wagner A. Suicide Attempt Self-Injury Interview (SASII): development, reliability, and validity of a scale to assess suicide attempts and intentional self-injury. Psychol Assess. 2006;18(3):303-12. doi: 10.1037/1040-3590.18.3.303.

14. Kim S, Woo S, Lee JS. Investigation of the Subtypes of Nonsuicidal Self-Injury Based on the Forms of Self-Harm Behavior: Examining Validity and Utility via Latent Class Analysis and Ecological Momentary Assessment. J Korean Med Sci. 2023;38(17):e132. doi: 10.3346/jkms.2023.38.e132.

15. Husain MO, Umer M, Taylor P, Chaudhry N, Kiran T, Ansari S, et al. Demographic and psychosocial characteristics of self-harm: The Pakistan perspective. Psychiatry Res. 2019;279:201-206. doi: 10.1016/j.psychres.2019.02.070.

16. Borschmann R, Hogg J, Phillips R, Moran P. Measuring self-harm in adults: a systematic review. Eur Psychiatry. 2012;27(3):176-80. doi: 10.1016/j.eurpsy.2011.04.005.

17. Brager-Larsen A, Zeiner P, Klungsøyr O, Mehlum L. Is age of self-harm onset associated with increased frequency of non-suicidal self-injury and suicide attempts in adolescent outpatients? BMC Psychiatry. 2022;22(1):58. doi: 10.1186/s12888-022-03712-w.

18. Shelef L, Nir I, Tatsa-Laur L, Yavnai N, Gold N, Cohen G, Ben Yehuda A. Factors associated with self-harm behaviors during military service in the Israel Defense Forces, rates of such behaviors and their outcomes. Mil Psychol. 2024;36(2):158-167. doi: 10.1080/08995605.2022.2151815.

19. Bryan CJ, Rudd MD, Wertenberger E, Young-McCaughon S, Peterson A. Nonsuicidal self-injury as a prospective predictor of suicide attempts in a clinical sample of military personnel. Compr Psychiatry. 2015;59:1-7. doi: 10.1016/j.comppsych.2014.07.009.

20. Posner K, Brown GK, Stanley B, Brent DA, Yershova KV, Oquendo MA, et al. The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. Am J Psychiatry. 2011;168(12):1266-77. doi: 10.1176/appi.ajp.2011.10111704.

21. Lindh ÅU, Dahlin M, Beckman K, Strömsten L, Jokinen J, Wiktorsson S, et al. A Comparison of Suicide Risk Scales in Predicting Repeat Suicide Attempt and Suicide: A Clinical Cohort Study. J Clin Psychiatry. 2019;80(6):18m12707. doi: 10.4088/JCP.18m12707.

22. undt JC, Greist JH, Jefferson JW, Federico M, Mann JJ, Posner K. Prediction of suicidal behavior in clinical research by lifetime suicidal ideation and behavior ascertained by the electronic Columbia-Suicide Severity Rating Scale. J Clin Psychiatry. 2013;74(9):887-93. doi: 10.4088/JCP.13m08398.

23. Salvi J. Calculated Decisions: Columbia-Suicide Severity Rating Scale (C-SSRS). Emerg Med Pract. 2019;21(5):CD3-4.

24. Crosby AE, Han B, Ortega LA, Parks SE, Gfroerer J, Centers for Disease Control and Prevention (CDC). Suicidal thoughts and behaviors among adults aged ≥18 years--United States, 2008-2009. MMWR Surveill Summ. 2011;60(13):1-22.

25. Katz I, Barry CN, Cooper SA, Kasprow WJ, Hoff RA. Use of the Columbia-Suicide Severity Rating Scale (C-SSRS) in a large sample of Veterans receiving mental health services in the Veterans Health Administration. Suicide Life Threat Behav. 2020;50(1):111-121. doi: 10.1111/sltb.12584.

26. Franks M, Cramer RJ, Cunningham CA, Kaniuka AR, Bryan CJ. Psychometric assessment of two suicide screeners when used under routine conditions in military outpatient treatment programs. Psychol Serv. 2021;18(3):433-439. doi: 10.1037/ser0000416.

27. Baer MM, LaCroix JM, Browne JC, Hassen HO, Perera KU, Weaver J, Soumoff A, Ghahramanlou-Holloway M. Non-Suicidal Self-Injury Elevates Suicide Risk among United States Military Personnel with Lifetime Attempted Suicide. Arch Suicide Res. 2018;22(3):453-464. doi: 10.1080/13811118.2017.1358225.

28. Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: the Scale for Suicide Ideation. J Consult Clin Psychol. 1979;47(2):343-52. doi: 10.1037//0022-006x.47.2.343.

29. Beck AT, Steer RA, Ranieri WF. Scale for Suicide Ideation: psychometric properties of a self-report version. J Clin Psychol. 1988;44(4):499-505. doi: 10.1002/1097-4679(198807)44:4<499::aid-jclp2270440404>3.0.co;2-6.

30. Baertschi M, Costanza A, Canuto A, Weber K. The dimensionality of suicidal ideation and its clinical implications. Int J Methods Psychiatr Res. 2019;28(1):e1755. doi: 10.1002/mpr.1755.

31. Baek IC, Jo S, Kim EJ, Lee GR, Lee DH, Jeon HJ. A Review of Suicide Risk Assessment Tools and Their Measured Psychometric Properties in Korea. Front Psychiatry. 2021;12:679779. doi: 10.3389/fpsyt.2021.679779.

32. de Beurs DP, Fokkema M, O'Connor RC. Optimizing the assessment of suicidal behavior: The application of curtailment techniques. J Affect Disord. 2016;196:218-24. doi: 10.1016/j.jad.2016.02.033.

33. Beck AT, Brown GK, Steer RA. Psychometric characteristics of the Scale for Suicide Ideation with psychiatric outpatients. Behav Res Ther. 1997;35(11):1039-46. doi: 10.1016/s0005-7967(97)00073-9.

34. Podlogar MC, Gutierrez PM, Osman A. Optimizing the Beck Scale for Suicide Ideation: An Item Response Theory Approach Among U.S. Military Personnel. Assessment 2022;30(4):1321-1333. https://doi.org/10.1177/10731911221092420.

35. Shelef L, Klomek AB, Fruchter E, Kedem R, Mann JJ, Zalsman G. Suicide ideation severity is associated with severe suicide attempts in a military setting. European Psychiatry. 2019;61:49-55. doi:10.1016/j.eurpsy.2019.06.005.

36. Beck AT, Weissman A, Lester D, Trexler L. The measurement of pessimism: the hopelessness scale. J Consult Clin Psychol. 1974;42(6):861-5. doi: 10.1037/h0037562.

37. Bottaro R, Faraci P. The Beck Hopelessness Scale's psychometric features: A new short form based on item response theory. J Affect Disord. 2024;361:457-464. doi: 10.1016/j.jad.2024.06.048.

38. Balsamo M, Carlucci L, Innamorati M, Lester D, Pompili M. Further Insights Into the Beck Hopelessness Scale (BHS): Unidimensionality Among Psychiatric Inpatients. Front Psychiatry. 2020;11:727. doi: 10.3389/fpsyt.2020.00727.

39. Kocalevent RD, Finck C, Pérez-Trujillo M, Sautier L, Zill J, Hinz A. Standardization of the Beck Hopelessness Scale in the general population. J Ment Health. 2017;26(6):516-522. doi: 10.1080/09638237.2016.1244717.

40. Aish AM, Wasserman D, Renberg ES. Does Beck's Hopelessness Scale really measure several components? Psychol Med. 2001 Feb;31(2):367-72. doi: 10.1017/s0033291701003300.

41. Aloba O, Akinsulore A, Mapayi B, Oloniniyi I, Mosaku K, Alimi T, Esan O. The Yoruba version of the Beck Hopelessness Scale: psychometric characteristics and correlates of hopelessness in a sample of Nigerian psychiatric outpatients. Compr Psychiatry. 2015;56:258-71. doi: 10.1016/j.comppsych.2014.09.024.

42. Bryan CJ, David Rudd M, Wertenberger E, Etienne N, Ray-Sannerud BN, Morrow CE, Peterson AL, Young-McCaughon S. Improving the detection and prediction of suicidal behavior among military personnel by measuring suicidal beliefs: an evaluation of the Suicide Cognitions Scale. J Affect Disord. 2014;159:15-22. doi: 10.1016/j.jad.2014.02.021.

43. Reist C, Mee S, Fujimoto K, Rajani V, Bunney WE, Bunney BG. Assessment of psychological pain in suicidal veterans. PLoS One. 2017;12(5):e0177974. doi: 10.1371/journal.pone.0177974.

44. Patterson WM, Dohn HH, Bird J, Patterson GA. Evaluation of suicidal patients: the SAD PERSONS scale. Psychosomatics. 1983;24(4):343-5, 348-9. doi: 10.1016/S0033-3182(83)73213-5.

45. Hockberger RS, Rothstein RJ. Assessment of suicide potential by nonpsychiatrists using the SAD PERSONS score. J Emerg Med. 1988;6(2):99-107. doi: 10.1016/0736-4679(88)90147-3.

46. Herman SM. Is the SADPERSONS Scale accurate for the veterans affairs population? Psychological Services 2006;3(2):137–141. https://doi.org/10.1037/1541-1559.3.2.137.

47. Warden S, Spiwak R, Sareen J, Bolton JM. The SAD PERSONS scale for suicide risk assessment: a systematic review. Arch Suicide Res. 2014;18(4):313-26. doi: 10.1080/13811118.2013.824829.

48. Katz C, Randall JR, Sareen J, Chateau D, Walld R, Leslie WD, Wang J, Bolton JM. Predicting suicide with the SAD PERSONS scale. Depress Anxiety. 2017;34(9):809-816. doi: 10.1002/da.22632.

49. Bolton JM, Spiwak R, Sareen J. Predicting suicide attempts with the SAD PERSONS scale: a longitudinal analysis. J Clin Psychiatry. 2012;73(6):e735-41. doi: 10.4088/JCP.11m07362.

50. Linehan MM, Goodstein JL, Nielsen SL, Chiles JA. Reasons for staying alive when you are thinking of killing yourself: the reasons for living inventory. J Consult Clin Psychol. 1983;51(2):276-86. doi: 10.1037//0022-006x.51.2.276.

51. Cwik JC, Siegmann P, Willutzki U, Nyhuis P, Wolter M, Forkmann T, et al. Brief reasons for living inventory: a psychometric investigation. BMC Psychiatry. 2017;17(1):358. doi: 10.1186/s12888-017-1521-x.

52. Lizardi D, Currier D, Galfalvy H, Sher L, Burke A, Mann J, Oquendo M. Perceived reasons for living at index hospitalization and future suicide attempt. J Nerv Ment Dis. 2007;195(5):451-5. doi: 10.1097/NMD.0b013e3180522661.

53. Chen JI, Osman A, Freedenthal SL, Gutierrez PM. An Examination of the Psychometric Properties of the Reasons for Living Inventory within a Male Veteran Clinical Sample. Arch Suicide Res. 2020;24(sup1):204-230. doi: 10.1080/13811118.2018.1563576.

54. Deutsch AM, Lande RG. The Reasons for Living Scale-Military Version: Assessing Protective Factors Against Suicide in a Military Sample. Mil Med. 2017;182(7):e1681-e1686. doi: 10.7205/MILMED-D-16-00382.

55. Jobes D A, Mann RE. Reasons for living versus reasons for dying: Examining the internal debate of suicide. Suicide and Life-Threatening Behavior 1999;29(2):97–104.

56. Fox AM, LaCroix JM, Bond AE, Perera KU, Luk JW, Goldston D, et al. Evaluating Suicide Risk Using the Reasons for Dying-Reasons for Living (RFD-RFL) Index in a Military Psychiatric Inpatient Setting. Psychiatry Res. 2021;295:113576. doi: 10.1016/j.psychres.2020.113576.

57. Brüdern J, Stähli A, Gysin-Maillart A, Michel K, Reisch T, Jobes DA, Brodbeck J. Reasons for living and dying in suicide attempters: a two-year prospective study. BMC Psychiatry. 2018;18(1):234. doi: 10.1186/s12888-018-1814-8.

58. Galynker I, Yaseen ZS, Briggs J, Hayashi F. Attitudes of acceptability and lack of condemnation toward suicide may be predictive of post-discharge suicide attempts. BMC Psychiatry. 2015;15:87. doi: 10.1186/s12888-015-0462-5.

59. Domino G. Cross-cultural attitudes towards suicide: the SOQ and a personal odyssey. Arch Suicide Res. 2005;9(2):107-22. doi: 10.1080/13811110590903963.

60. Anderson AL, Lester D, Rogers JR. A psychometric investigation of the Suicide Opinion Questionnaire. Death Stud. 2008;32(10):924-36. doi: 10.1080/07481180802440258.

61. Limbacher M, Domino G. Attitudes toward suicide among attempters, contemplators, and nonattempters. OMEGA--J Death Dying. 1985;16(4):325–34. doi: 10.2190/XG9Y-1H7L-JHD7-VU86.

62. VanSickle M, Werbel A, Perera K, Pak K, DeYoung K, Ghahramanlou-Holloway M. Principal Component Analysis of the Suicide Opinion Questionnaire in a U.S. Military Sample of Marine Corps Non-Commissioned Officers. Military Medicine. 2016;181(7):672–679. https://doi.org/10.7205/MILMED-D-15-00062

63. Yaseen ZS, Kopeykina I, Gutkovich Z, Bassirnia A, Cohen LJ, Galynker II. Predictive validity of the Suicide Trigger Scale (STS-3) for post-discharge suicide attempt in high-risk psychiatric inpatients. PLoS One. 2014;9(1):e86768. doi: 10.1371/journal.pone.0086768.

64. Yaseen ZS, Gilmer E, Modi J, Cohen LJ, Galynker II. Emergency room validation of the revised Suicide Trigger Scale (STS-3): a measure of a hypothesized suicide trigger state. PLoS One. 2012;7(9):e45157. doi: 10.1371/journal.pone.0045157.

65. Cooper J, Kapur N, Dunning J, Guthrie E, Appleby L, Mackway-Jones K. A clinical tool for assessing risk after self-harm. Ann Emerg Med. 2006;48(4):459-66. doi: 10.1016/j.annemergmed.2006.07.944.

66. Steeg S, Kapur N, Webb R, Applegate E, Stewart SL, Hawton K, Bergen H, Waters K, Cooper J. The development of a population-level clinical screening tool for self-harm repetition and suicide: the ReACT Self-Harm Rule. Psychol Med. 2012;42(11):2383-94. doi: 10.1017/S0033291712000347.

67. Linehan MM, Nielsen SL. Suicidal behaviors questionnaire". Unpublished inventory, University of Washington, Seattle, Washington, 1981.

68. Linehan MM, Nielsen SL. Assessment of suicide ideation and parasuicide: Hopelessness and social desirability. J Consult Clin Psychol 1981;49(5):773-775. doi:10.1037/0022-006X.49.5.773.

69. Linehan MM. The suicidal behaviors questionnaire-14 (SBQ-14). Unpublished instrument, University of Washington, Seattle, 1996.

70. Osman A, Bagge CL, Gutierrez PM, Konick LC, Kopper BA, Barrios FX. The Suicidal Behaviors Questionnaire-Revised (SBQ-R): validation with clinical and nonclinical samples. Assessment. 2001;8(4):443-54. doi: 10.1177/107319110100800409.

71. Cotton CR, Peters DK, Range LM. Psychometric properties of the Suicidal Behaviors Questionnaire. Death Stud. 1995;19(4):391-7. doi: 10.1080/07481189508252740.

72. Gómez-Romero MJ, Tomás-Sábado J, Montes-Hidalgo J, Brando-Garrido C, Limonero JT. The suicidal behaviors questionnaire-revised. Spanish form. Death Stud. 2021;45(8):623-629. doi: 10.1080/07481187.2019.1671544.

73. Glaesmer H, Kapusta ND, Teismann T, Wagner B, Hallensleben N, Spangenberg L, Forkmann T. Psychometrische Eigenschaften der deutschen Version des Suicide Behaviors Questionnaire Revised (SBQ-R). Psychother Psychosom Med Psychol. 2018;68(8):346-352. doi: 10.1055/s-0043-118335.

74. Huen JMY, Osman A, Lew B, Yip PSF. Utility of Single Items within the Suicidal Behaviors Questionnaire-Revised (SBQ-R): A Bayesian Network Approach and Relative Importance Analysis. Behav Sci (Basel). 2024;14(5):410. doi: 10.3390/bs14050410.

75. Abdoli N, Salari N, Farnia V, Khodamoradi M, Jahangiri S, Mohammadi M, Brühl AB, Sadeghi-Bahmani D, Brand S. Risk-Taking Behavior among Suicide Attempters. J Clin Med. 2022;11(14):4177. doi: 10.3390/jcm11144177.

76. Wu Y, Qu Z, Tang W, Zheng Y, Xiong X, Ye Z, Li Z. Reducing the risk of suicidal behaviors in medical graduate students: exploration of student-supervisor relationship and subjective family socioeconomic status. Front Psychiatry. 2024;15:1381291. doi: 10.3389/fpsyt.2024.1381291.

77. Simon NM, Pollack MH, Ostacher MJ, Zalta AK, Chow CW, Fischmann D, et al. Understanding the link between anxiety symptoms and suicidal ideation and behaviors in outpatients with bipolar disorder. J Affect Disord. 2007;97(1-3):91-9. doi: 10.1016/j.jad.2006.05.027.

78. de Araújo RMF, Zanotto M, da Rosa LR, Mazzochi L, Lara DR. Sensitivity is the dimension of temperament most associated with the progression from ideation to suicide attempts. J Affect Disord. 2021 Nov 1;294:695-700. doi: 10.1016/j.jad.2021.07.038.

79. Rauch SAM, Steimle LN, Li J, Black K, Nylocks KM, Patton SC, et al. Frequency and correlates of suicidal ideation and behaviors in treatment-seeking Post-9/11 Veterans. J Psychiatr Res. 2022;155:559-566. doi: 10.1016/j.jpsychires.2022.09.010.

80. Fischer IC, Nichter B, Aunon FM, Feldman DB, Levy BR, Esterlis I, Pietrzak RH. Suicidal Thoughts and Behaviors in Older U.S. Military Veterans: Results From the National Health and Resilience in Veterans Study. Am J Geriatr Psychiatry. 2023;31(10):844-852. doi: 10.1016/j.jagp.2023.04.013.

81. Nichter B, Hill ML, Na PJ, Kline AC, Norman SB, Krystal JH, et al. Prevalence and Trends in Suicidal Behavior Among US Military Veterans During the COVID-19 Pandemic. JAMA Psychiatry. 2021;78(11):1218-1227. doi: 10.1001/jamapsychiatry.2021.2332.

82. VanSickle M, Tucker J, Daruwala S, Ghahramanlou-Holloway M. Development and psychometric evaluation of the Military Suicide Attitudes Questionnaire (MSAQ). J Affect Disord. 2016;203:158-165. doi: 10.1016/j.jad.2016.03.065.

83. Cull JG, Gill WS. Suicide Probability Scale (SPS). APA PsycTests 1982. https://doi.org/10.1037/t01198-000

84. Bisconer S W, Gross DM. Assessment of suicide risk in a psychiatric hospital. Professional Psychology: Research and Practice. 2007;38(2):143–149. https://doi.org/10.1037/0735-7028.38.2.143

85. Tatman SM, Greene AL, Karr LC. Use of the Suicide Probability Scale (SPS) with adolescents. Suicide Life Threat Behav. 1993;23(3):188-203.

86. Teig S, Whitehead D, Schultz R. Correlates of the Suicide Probability Scale (SPS) in adolescent psychiatric inpatients boys and girls. Conference Proceedings: Undergraduate Social Science Research Conference 2003;7(1):261-264. https://scholarworks.uni.edu/csbsproceedings/vol7/iss1/54/

87. Sheehan DV, Giddens JM, Sheehan IS. Status Update on the Sheehan-Suicidality Tracking Scale (S-STS) 2014. Innov Clin Neurosci. 2014;11(9-10):93-140.

88. Amado DM, Beamon DA, Sheehan DV. Linguistic Validation of the Pediatric Versions of the Sheehan Suicidality Tracking Scale (S-STS). Innov Clin Neurosci. 2014;11(9-10):141-63.

89. Preti A, Sheehan DV, Coric V, Distinto M, Pitanti M, Vacca I, et al. Sheehan Suicidality Tracking Scale (S-STS): reliability, convergent and discriminative validity in young Italian adults. Compr Psychiatry. 2013;54(7):842-9. doi: 10.1016/j.comppsych.2013.03.012.

90. Coric V, Stock EG, Pultz J, Marcus R, Sheehan DV. Sheehan Suicidality Tracking Scale (Sheehan-STS): Preliminary Results from a Multicenter Clinical Trial in Generalized Anxiety Disorder. Psychiatry (Edgmont). 2009;6(1):26-31.

91. Khan A, Khan SR, Hobus J, Faucett J, Mehra V, Giller EL, Rudolph RL. Differential pattern of response in mood symptoms and suicide risk measures in severely ill depressed patients assigned to citalopram with placebo or citalopram combined with lithium: role of lithium levels. J Psychiatr Res. 2011;45(11):1489-96. doi: 10.1016/j.jpsychires.2011.06.016.

92. Lindenmayer JP, Czobor P, Alphs L, Nathan AM, Anand R, Islam Z, Chou JC; InterSePT Study Group. The InterSePT scale for suicidal thinking reliability and validity. Schizophr Res. 2003;63(1-2):161-70. doi: 10.1016/s0920-9964(02)00335-3.

93. Ayer DW, Jayathilake K, Meltzer HY. The InterSePT suicide scale for prediction of imminent suicidal behaviors. Psychiatry Res. 2008;161(1):87-96. doi: 10.1016/j.psychres.2007.07.029.

94. Meltzer HY, Alphs L, Green AI, Altamura AC, Anand R, Bertoldi A, et al; International Suicide Prevention Trial Study Group. Clozapine treatment for suicidality in schizophrenia: International Suicide Prevention Trial (InterSePT). Arch Gen Psychiatry. 2003 Jan;60(1):82-91. doi: 10.1001/archpsyc.60.1.82. Erratum in: Arch Gen Psychiatry. 2003;60(7):735.

95. Burke TA, Ammerman BA, Knorr AC, Alloy LB, McCloskey MS. Measuring Acquired Capability for Suicide within an Ideation-to-Action Framework. Psychol Violence. 2018;8(2):277-286. doi: 10.1037/vio0000090.

96. Smith PN, Cukrowicz KC, Poindexter EK, Hobson V, Cohen LM. The acquired capability for suicide: a comparison of suicide attempters, suicide ideators, and non-suicidal controls. Depress Anxiety. 2010;27(9):871-7. doi: 10.1002/da.20701.

97. Kramer EB, Gaeddert LA, Jackson CL, Harnke B, Nazem S. Use of the acquired capability for suicide scale (ACSS) among United States military and Veteran samples: A systematic review. J Affect Disord. 2020;267:229-242. doi: 10.1016/j.jad.2020.01.153.

98. Richter P, Werner J, Heerlein A, Kraus A, Sauer H. On the validity of the Beck Depression Inventory. A review. Psychopathology. 1998;31(3):160-8. doi: 10.1159/000066239.

99. Ballard ED, Luckenbaugh DA, Richards EM, Walls TL, Brutsché NE, Ameli R, Niciu MJ, Vande Voort JL, Zarate CA Jr. Assessing measures of suicidal ideation in clinical trials with a rapid-acting antidepressant. J Psychiatr Res. 2015;68:68-73. doi: 10.1016/j.jpsychires.2015.06.003.

100. Green KL, Brown GK, Jager-Hyman S, Cha J, Steer RA, Beck AT. The Predictive Validity of the Beck Depression Inventory Suicide Item. J Clin Psychiatry. 2015;76(12):1683-6. doi: 10.4088/JCP.14m09391.

101. Laoufi MA, Wacquier B, Lartigolle T, Loas G, Hein M. Suicidal Ideation in Major Depressed Individuals: Role of Type D Personality. J Clin Med. 2022;11(22):6611. doi: 10.3390/jcm11226611.

102. Carrozzino D, Patierno C, Fava GA, Guidi J. The Hamilton Rating Scales for Depression: A Critical Review of Clinimetric Properties of Different Versions. Psychother Psychosom. 2020;89(3):133-150. doi: 10.1159/000506879.

103. Desseilles M, Perroud N, Guillaume S, Jaussent I, Genty C, Malafosse A, Courtet P. Is it valid to measure suicidal ideation by depression rating scales? J Affect Disord. 2012;136(3):398-404. doi: 10.1016/j.jad.2011.11.013.

104. Quinlivan L, Cooper J, Meehan D, Longson D, Potokar J, Hulme T, et al. Predictive accuracy of risk scales following self-harm: multicentre, prospective cohort study. Br J Psychiatry. 2017;210(6):429-436. doi: 10.1192/bjp.bp.116.189993.

105.. Taylor AK, Steeg S, Quinlivan L, Gunnell D, Hawton K, Kapur N. Accuracy of individual and combined risk-scale items in the prediction of repetition of self-harm: multicentre prospective cohort study. BJPsych Open. 2020;7(1):e2. doi: 10.1192/bjo.2020.123.

106. Quinlivan L, Steeg S, Elvidge J, Nowland R, Davies L, Hawton K, Gunnell D, Kapur N. Risk assessment scales to predict risk of hospital treated repeat self-harm: A cost-effectiveness modelling analysis. J Affect Disord. 2019;249:208-215. doi: 10.1016/j.jad.2019.02.036.

107. Runeson B, Odeberg J, Pettersson A, Edbom T, Jildevik Adamsson I, Waern M. Instruments for the assessment of suicide risk: A systematic review evaluating the certainty of the evidence. PLoS One. 2017;12(7):e0180292. doi: 10.1371/journal.pone.0180292.

108. Youngstrom EA, Hameed A, Mitchell MA, Van Meter AR, Freeman AJ, Algorta GP, et al. Direct comparison of the psychometric properties of multiple interview and patient-rated assessments of suicidal ideation and behavior in an adult psychiatric inpatient sample. J Clin Psychiatry. 2015;76(12):1676-82. doi: 10.4088/JCP.14m09353.

109. Sheehan DV, Alphs LD, Mao L, Li Q, May RS, Bruer EH, et al. Comparative Validation of the S-STS, the ISST-Plus, and the C-SSRS for Assessing the Suicidal Thinking and Behavior FDA 2012 Suicidality Categories. Innov Clin Neurosci. 2014;11(9-10):32-46.

110. Stanciu M, Nistor C, Iliescu MG, Ciobanu I, Popa FL, Ciobica ML, et al. Physical exercise as part of the rehabilitation in primary osteoporosis: insights into the signal transduction bone formation pathways. Balneo and PRM Research Journal. 2024;15(2):693. doi:10.12680/balneo.2024.693

111. Plesa CF, Chitimus DM, Sirbu CA, Ţânţu MM, Ghinescu MC, Anghel D, Ionita-Radu F. Thrombotic Thrombocytopenic Purpura in Interferon Beta-1a-Treated Patient Diagnosed with Relapsing-Remitting Multiple Sclerosis: A Case Report. Life (Basel). 2022 Jan 7;12(1):80. doi: 10.3390/life12010080.

112. Mititelu M, Oancea CN, Neacsu SM, Musuc AM, Gheonea TC, Stanciu TI, et al. Evaluation of junk food consumption and the risk to consumer health among the Romanian population. Nutrients 2023;15(16):3591. https://doi.org/10.3390/nu15163591.

113. Song A, Koh EJ, Lee WY, Chang S, Lim J, Choi M, Ki M. Suicide risk of chronic diseases and comorbidities: A Korean case-control study. J Affect Disord. 2024;349:431-437. doi: 10.1016/j.jad.2024.01.037.

114. Vasiliu O. Efficacy, tolerability, and safety of toludesvenlafaxine for the treatment of major depressive disorder- A narrative review. Pharmaceuticals 2023 ;16(3) :411. https://doi.org/10.3390/ph16030411.

115. Sîrbu CA, Manole AM, Vasile M, Toma GS, Dobrican LR, Vîrvara DG, Vasiliu O. Cannabinoids- a new therapeutic strategy in neurology. RJMM 2022;3(CXXV):349-355. doi: 10.55453/rjmm.2022.125.3.1.

116. Gibbons RD, Brown CH, Hur K, Marcus SM, Bhaumik DK, Mann JJ. Relationship between antidepressants and suicide attempts: an analysis of the

Veterans Health Administration data sets. Am J Psychiatry. 2007;164(7):1044-9. doi: 10.1176/ajp.2007.164.7.1044.

117. Zisook S, Moutier CY, Rush AJ, Johnson GR, Tal I, Chen PJ, et al. Effect of next-step antidepressant treatment on suicidal ideation: findings from the VAST-D trial. Psychol Med. 2024;54(6):1172-1183. doi: 10.1017/S0033291723003008